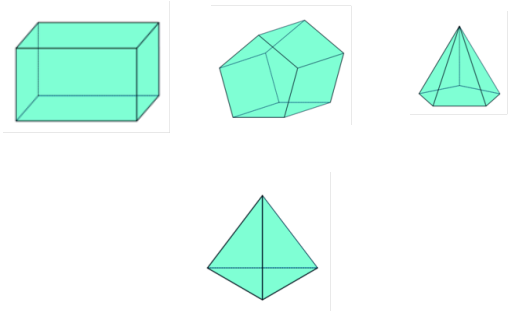


12.1 Explore Solids

Polyhedron-solid that is bounded by polygons



Not Polyhedra



Faces
ABGH, DAHE, etc...

Edges
 \overline{AB} , \overline{DC} , \overline{GH} , etc...

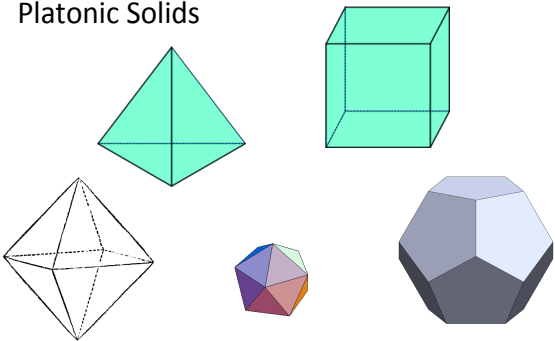
Vertex
A, B, G, etc...

Base

A 3D diagram of a rectangular prism. The vertices are labeled: A (top-left-front), B (top-right-front), C (bottom-left-front), D (bottom-right-front), E (bottom-right-back), F (bottom-left-back), G (top-right-back), and H (top-left-back).

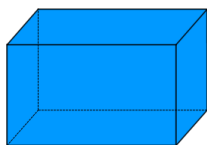
~~Regular Polygon~~—all faces are congruent regular polygons

Platonic Solids



activity

Euler's Theorem-
 $F + V = E + 2$



p798-799
 #s3-13, 25-27

Ex: How many faces are on a solid with
 12 vertices and 30 edges?

$$\begin{aligned} F + V &= E + 2 \\ F + 12 &= 30 + 2 \\ F &= 20 \end{aligned}$$

<http://www.mathsisfun.com/geometry/polyhedron-models.html?m=Octagonal%20Prism>

IDENTIFYING POLYHEDRA Determine whether the solid is a polyhedron. If it is, name the polyhedron. *Explain* your reasoning.

3.



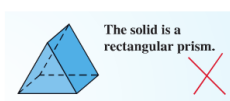
4.



5.



6. **ERROR ANALYSIS** Describe and correct the error in identifying the solid.



SKETCHING POLYHEDRA Sketch the polyhedron.

7. Rectangular prism

8. Triangular prism

9. Square pyramid

10. Pentagonal pyramid

APPLYING EULER'S THEOREM Use Euler's Theorem to find the value of n .

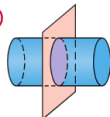
11. Faces: n

12. Faces: 5

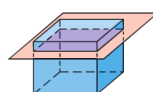
13. Faces: 10

CROSS SECTIONS Draw and describe the cross section formed by the intersection of the plane and the solid.

25.



26.



27.

